

REMARKS

Claims 18-25 are rejected, under 35 U.S.C. § 102(b), as being anticipated by Khoe `195, as well as being rejected, under 35 U.S.C. § 103(a), as being obvious in view of Khoe `195. The Applicant acknowledges and respectfully traverses the raised anticipatory and obviousness rejections in view of the following remarks.

The Examiner asserts that Khoe `195 discloses a method for oxidizing various types of inorganic species including As and Fe with reference to both the abstract, lines 1-2 and the disclosure of the invention, page 6, lines 7-17.

The Applicant acknowledges the Examiner's presumption that the subject matter of the various claims of the present invention were commonly owned at the time of the invention covered therein absent any evidence to the contrary. In response to this presumption, the Applicant points out that all four inventors were employees of Australian Nuclear Science & Technology Organisation at the time of the present invention. Sometime after the invention was made, Australian Nuclear Science & Technology Organisation decided to transfer its right in this invention to the CRC for Waste Management & Pollution Control Limited.

The disclosure in the first aspect clearly defines the photoabsorber in conjunction with as preferably Fe(II) and/or Fe(III) species but also one or more of Al(III), Cr(III), Cu(II), Ce(III), etc., as appropriate (see page 3, lines 29-33).

In contrast, the disclosure in the third aspect teaches a method for oxidizing Fe(II) to Fe(III) in a solution in conjunction with a substance which is capable of being oxidized and increasing the rate of reaction, these substances preferably being As(III), P(III), S(IV), Ce(III) or Mn(II) (page 6, lines 7-27). Clearly these disclosures are distinct methods in the specification. They are mutually exclusive. The teaching of each method does not apply to the teaching of the other. Further, the Applicant respectfully submits that the abstract cannot be used to combine these two aspects.

The disclosure of As in the first aspect of the disclosure relates to a completely different set of photoabsorbers for the present invention. The different species disclosed in each of these aspects are illustrated in the Table 1.

Table 1 - Species in Khoe `195

	A1(III)	As(III)	Ce(III)	Cr(III)	Cu(II)	Fe(II)	Fe(III)	Mn(II)	P(III)	S(IV)
Aspect 1: As	X		X	X	X	X	X			
Aspect 3: Fe		X	X					X	X	X

Table 1 shows that it is only the third aspect disclosed in the Khoe `195 specification that discloses the use of S(IV) in to oxidize Fe(II) to Fe(III), but not as a photoabsorber.

A comparison of the currently amended method claim 18 and the first aspect disclosed in the applied Khoe `195 reference is provided in Table 2.

Table 2

(Currently Amended Claim 18 compared to First Aspect of Khoe `195)

Claim 18	Khoe (WO 95/11195)
A method for oxidizing arsenic, manganese, cerium or uranium	A method for oxidizing arsenic (page, 2, lines 28-29)
comprising the steps	
supplying an oxidizable source of sulphur as a photoabsorber	<i>not disclosed, nor inferable; no motivation to infer for arsenic oxidation as S(IV) is not disclosed as a photoabsorber or as an oxidizable source of sulphur</i>
and oxygen to the solution	supplying the solution with oxygen (page 2, line 31)
irradiating the solution with UV light such that the arsenic, manganese, cerium or uranium is oxidized	irradiating. . .with UV radiation (page 2, lines 35-36)

A comparison of currently amended method claim 18 and the third aspect disclosed in the cited Khoe `195 specification is provided in Table 3.

Table 3

(Currently Amended Claim 18 compared to Third Aspect of Khoe `195)

Claim 18	Khoe (WO 95/11195)
A method for oxidizing arsenic, manganese, cerium or uranium	<i>not disclosed, nor inferable; no motivation to infer for As, Mn, Ce or U oxidation</i>
comprising the steps	
supplying an oxidizable source of sulphur as a photoabsorber	A substance which is different to Fe(II) (page 6, line 11) where preferably the substance is S(IV) (page 6, line 22)
and oxygen to the solution	supplying the solution with an oxidant (page 6, line 10) where it is most preferred that the oxidant includes oxygen (page 6, line 10)
irradiating the solution with UV light such that the arsenic, manganese, cerium or uranium is oxidized	irradiating. . .with UV radiation (page 6, line 32)

With respect to the Khoe `195 reference, Table 2 and Table 3 clearly indicate that the method recited in currently pending claim 18 is novel. According to the method of claim 18, the oxidizable source of sulphur absorbs UV light and is oxidized by the oxygen present in the solution. Subsequently, the oxidized source of sulphur oxidizes the arsenic, manganese, cerium or uranium present in the solution in order to achieve the advantageous effect of the present invention. Namely, the method of the present invention enables removal of oxidizable inorganic contaminants from water (e.g., to be used in a drinking water treatment facility) which may be present in, for example, trace quantities.

Once again, the Applicant reiterates that Khoe `195 does not, in any way, disclose the use of an oxidizable source of sulphur as a photoabsorber in a method for treating the inorganic

contaminants arsenic, manganese, cerium or uranium. Further, Khoe `195 does not in any way suggest the specific selection of S(IV) in a method for the treatment of drinking water having the oxidizable contaminants arsenic, manganese, cerium or uranium.

Hence, the Applicant asserts that currently amended claim 18 is novel, not obvious and patentable in view of the applied Khoe `195 citation. New independent claim 30 is believed to be allowable for essentially the same reasons. In addition, as the currently amended claim 18 is novel, not obvious and patentable over the art of record in this case, each of the dependent claims 19 to 25 are also patentable as they are dependent on the novel claim 18.

The Khoe `195 disclosure only teaches the use of sulphur (IV) in relation to the third aspect of the disclosure therein. The differences between the prior art and the claims at issue is exemplified in Table 2 and Table 3. It would not be obvious to a person of ordinary skill in the pertinent art from the teaching of the Khoe `195 specification to supply an oxidizable source of sulphur, as a photoabsorber, together with oxygen to oxidize arsenic, manganese, cerium or uranium. The Applicant contests the Examiner's argument that one having ordinary skill in the art would experiment in order to oxidize different types of trace elements as the Khoe `195 specification provides no teaching, motivation or suggestion to attempt the same.

In order to emphasize the above noted distinctions between the presently claimed invention and the applied art, the independent claims of this application now recite the features of "[a] method for oxidizing arsenic, manganese, cerium or uranium in an aqueous solution comprising the steps of: (i) supplying an oxidizable source of sulphur as a photoabsorber, and oxygen to the solution; and (ii) irradiating the solution with UV light such that the arsenic, manganese, cerium or uranium is oxidized". New independent claim 30 recites similar limitations. Such features are believed to clearly and patentably distinguish the presently claimed invention from all of the art of record, including the applied art.

The Examiner's arguments also rely on the abstract to unite the two mutually distinct aspects of the disclosure. The inorganic species in each aspect of the Khoe `195 disclosure provide distinct lists of species for oxidation with the method of each aspect. It is respectfully

submitted that it is merely for convenience that the abstract groups each of the species in the abstract as "dissolved species". For similar convenience, it is respectfully submitted that the abstract refers to "UV/electromagnetic radiation" but nowhere in the Khoe `195 disclosure does it teach that these aspects are related and, in fact, they represent two distinct aspects, with different methodologies.

If any further amendment to this application is believed necessary to advance prosecution and place this case in allowable form, the Examiner is courteously solicited to contact the undersigned representative of the Applicant to discuss the same.

In view of the above amendments and remarks, it is respectfully submitted that all of the raised rejection(s) should be withdrawn at this time. If the Examiner disagrees with the Applicant's view concerning the withdrawal of the outstanding rejection(s) or applicability of the Khoe `195 reference, the Applicant respectfully requests the Examiner to indicate the specific passage or passages, or the drawing or drawings, which contain the necessary teaching, suggestion and/or disclosure required by case law. As such teaching, suggestion and/or disclosure is not present in the applied references, the raised rejection should be withdrawn at this time. Alternatively, if the Examiner is relying on his/her expertise in this field, the Applicant respectfully requests the Examiner to enter an affidavit substantiating the Examiner's position so that suitable contradictory evidence can be entered in this case by the Applicant.

In view of the foregoing, it is respectfully submitted that the raised rejection(s) should be withdrawn and this application is now placed in a condition for allowance. Action to that end, in the form of an early Notice of Allowance, is courteously solicited by the Applicant at this time.

The Applicant respectfully requests that any outstanding objection(s) or requirement(s), as to the form of this application, be held in abeyance until allowable subject matter is indicated for this case.

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In the event that there are any fee deficiencies or additional fees are payable, please charge the same or credit any overpayment to our Deposit Account (Account No. 04-0213).

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Michael J. Bujold", written over the printed name and registration number.

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